

August 16, 1988

Walter Lee (28W14)
U.S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, Pennsylvania 19107

Reference: EPA Contract No. 68-01-7331, WA No. 227

Dear Walter:

Enclosed please find the July Monthly Report for Versar's Oversight of Lagoon Abatement Activities at the Arrowhead Plating Site located in Martinsburg, Virginia.

If you have any questions regarding this submittal, please call Jim Pflanz at (703) 750-3000.

Sincerely,

for Virginia H. Pohlman
Scott Slagley
TES Regional Manager

SS/vml:27/88

Enclosure

cc: Harry Butler, CDM FPC HQs (2 copies)
Mark diFelicianantonio, CDM FPC Region III (1 copy)

AR401100

DRAFT REPORT

WORK ASSIGNMENT NO. 227
EPA CONTRACT NO. 68-01-7331
DOC. NO. 1888Y

JULY MONTHLY REPORT
CERCLA REMOVAL OVERSIGHT
ARROWHEAD PLATING SITE
MONTROSS, VIRGINIA

SUBMITTED TO:

CDM FEDERAL PROGRAMS CORPORATION
13135 LEE JACKSON MEMORIAL HIGHWAY
SUITE 200
FAIRFAX, VIRGINIA 22033

SUBMITTED BY:

VERSAR INC.
6850 VERSAR CENTER
SPRINGFIELD, VIRGINIA 22151

AUGUST 16, 1988

AR491101

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
2.0 SUMMARY OF ACTIVITIES	1
3.0 PROBLEMS AND CONCERNS	2
3.1 Deviations from the Approved Work Plan	2
3.1.1 Abatement of Contaminated Pond Wastewaters	5
3.1.2 Abatement of Pond Sludge	6
3.2 Treatment System Throughput	7
3.3 Site Worker Health and Safety	8
4.0 RECOMMENDATIONS.....	9
5.0 UPCOMING ACTIVITIES	9
FIGURE 1. Schematic of the Outside Electroplating Lagoons at the Arrowhead Site, Montross, Virginia (Not to Scale)	3

ATTACHMENT: Photographic Log

AR401102

1.0 INTRODUCTION

CDM Federal Programs Corporation (FPC) received a work assignment under the Technical Enforcement Support (TES) III (EPA Contract No. 68-01-7331) program to perform oversight of removal and cleanup activities at the Arrowhead Plating facility in Montross, Virginia. CDM FPC has subcontracted with Versar, Inc., to perform the technical activities of the work assignment.

Versar's objectives during oversight are (1) to observe and document site activities, and (2) to convey information and concerns to EPA relevant to the contractor's implementation of work plans and possible threats to human health or the environment.

The removal action at Arrowhead has been performed or scheduled as follows:

- Phase I - stabilization and removal of all onsite wastes and waste containers.
- Phase II - decontamination of the plant building's interior.
- Phase III - removal of contaminated soil from outside areas.
- Phase IV - abatement of six onsite lagoons containing wastewater and sludge.

Phases I through III were completed as of the end of 1987. EPA granted approval for Scoville Incorporated (the responsible party) to start Phase IV activities, as detailed in ICF Technology's approved work plan dated October 9, 1987, and in a modification letter dated July 15, 1988.

2.0 SUMMARY OF ACTIVITIES

Versar's oversight activities for Phase IV at the Arrowhead facility began on July 13, 1988. ICF Technology, Scoville's consultant for the clean-up work, subcontracted Roy F. Weston to perform the lagoon abatement work. During the week of July 4, 1988, the contractors completed mobilization of the waste-water filtering and treatment

AR401103

system. The following site events or activities occurred at Arrowhead during July 1988:

- Contaminated water was pumped from five of the six electroplating lagoons at the site on a 24-hour-per-day basis. The four smaller sludge ponds were drained to depths of 6-to-12 inches of water or semi-solids (see Figure 1). Also, pumping was started in a settling lagoon located at the Northwest portion of the site (see Figure 1).
- Dewatering of pond sludge was started by in-place stabilization using cement kiln dust (CKD) or lime kiln dust (LKD). Dust shipments started arriving on site on July 21, 1988, and were temporarily stored in the southwest portion of the site. Front-end loaders transported the CKD or LKD to the sludge pits, where a backhoe mechanically mixed the dust and the sludge. The sludge in three sludge ponds was completely dewatered, the dewatering activities at a fourth sludge pond were approximately half completed, and stabilization started in the new pond (see Figure 1).
- The contractor began constructing a concrete pad for use in decontaminating heavy equipment needed in the sludge remediation work.
- A State of Virginia environmental representative from the Department of Waste Management visited the site on July 28, 1988, and observed site operations.
- ICF collected samples of the sludge in the new pond, located in the southwest portion of the site.
- The effluent water from the lagoon pumping activity was checked for pH level by the contractors. ICF reportedly sampled the treated effluent water on June 12, 1988, during the first full day of treatment system operation (which was one month before Versar began the oversight at EPA's direction).

3.0 PROBLEMS AND CONCERNS

3.1 Deviations from the Approved Work Plan

From the beginning of oversight activities at Arrowhead on July 13, 1988, Versar noted major deviations in lagoon abatement activities from those stipulated in ICF Technology's work plan dated October 9, 1987 (which is entitled "Phase II Abatement Plan, Former Scoville Plating Plant, Montross, Virginia). The work plan, prepared by ICF as the

AR401104

SETTLING LAGOON

Northwest
Pond
(Sludge)

Northeast
Pond
(Sludge)

Southwest
Pond
(Sludge)

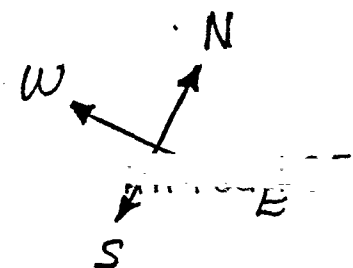
Southeast
Pond
(Sludge)

Sewage
Pond

Sewage
Pond

New Pond

FIGURE 1
SCHEMATIC OF THE OUTSIDE ELECTROPLATING
LAGOONS AT THE ARROWHEAD SITE
MONTROSS, VIRGINIA
(Not to Scale)



responsible party's (Scoville Incorporated) consultant, was the only work plan for this project which was approved by EPA as of the start of oversight activities on July 13, 1988. The work plan was available to Versar for use in the oversight evaluation. The Phase II abatement activities as defined by ICF included abatement of wastewaters, sludges, and contaminated soils from the outside ponds.

On July 27, 1988, Versar received from EPA a copy of a letter dated July 15, 1988, from ICF Technology to the EPA primary contact. This letter mentions the revised wastewater and sludge remediation activities that were already being implemented at Arrowhead, including the criteria being implemented for the effluent water discharges. These criteria were issued by the Virginia Water Control Board. However, the letter does not discuss in detail the deviations from the approved work plan for ongoing remedial activities.

Also mentioned in the letter are the results of a bioassay test performed on a sample of the untreated pond wastewaters. ICF states in the letter that the test results show that the wastewaters, even before treatment, are not acutely toxic to freshwater aquatic life. ICF then requests EPA's approval of the water discharge criteria issued by the State of Virginia, performance of three sampling events for the effluent water discharge over the life of the treatment system's operation at the site, a maximum daily discharge to local surface water of 150,000 gallons of treated water, and the fulfillment of the requirement for the bioassay test already completed.

Versar compared actual site activities being performed for the lagoons at Arrowhead to the activities outlined in the October 1987 Work Plan. The letter dated July 15, 1988, was drafted by ICF Technology after the revised cleanup technology and procedures were being implemented in the field. Also, Versar did not receive this letter until the end of July, after 2 weeks of oversight work had been performed. Versar has not received an amended work plan detailing the revised cleanup technology and procedures being used at the site, despite numerous

AR401106

requests to the contractors for this plan. Also, analytical data showing that the operating system is actually meeting the discharge criteria specified in the approved work plan, and that the discharge in question is permitted by the National Pollutant Discharge Elimination System (NPDES), have not been made available to Versar.

The deviations that Versar noted between actual lagoon cleanup operations and those described in ICF's approved October 1987 contractor's work plan are detailed below. Two subject areas are discussed: (1) issues relating to the abatement of pond wastewaters, and (2) issues relating to the abatement of pond sludge. Versar verbally routed concerns over these issues to the EPA primary contact for evaluation and possible action. Also, all events related to these deviations from the work plan are documented in the site logbook.

3.1.1 Abatement of Contaminated Pond Wastewaters

The approved work plan calls for the pond waters to be treated, tested, and shipped for disposal in batches of about 20,000 gallons each. An on-site mobile laboratory was to perform water analyses on samples of the discharge. If the treated water was within the discharge standards, then the batch of treated water was to be shipped to a designated Publicly-Owned Treatment Works (POTW) for subsequent treatment and disposal. The effluent was to meet the following criteria, subject to change based on POTW standards, for disposal: total suspended solid concentrations of less than 5.0 mg/l, and levels of less than 0.5 mg/l each of copper, zinc, and nickel. Daily water removal rates for disposal could vary between 50,000 and 145,000 gallons per day, depending on the designated POTW. Treatment was to be accomplished by a multi-media filter or equivalent system.

Actual site operations beginning July 13, 1988, involved processing the wastewater through a sand filter, followed by an ion-exchange treatment unit (see Photographs 1 and 2). This was performed on a 24-hour-per-day throughput basis, with the effluent water being continuously discharged into a nearby stream by way of a sewer line.

AR401107

Versar discovered that the only testing planned for the effluent water, based on verbal information received from ICF on July 18, 1988, was 3 sampling events over the course of the pond pumpout (e.g., one event at the start of pumpout, one event at the middle of pumpout, and one event towards the end of pumpout). Criteria for the effluent water were not specified, other than verbal information from ICF that indicated the effluent would be of drinking water quality.

ICF is not operating a mobile, on-site laboratory. Also, because the treated effluent is being continuously discharged, any analytical data from water sampling will be "after the fact"; that is, the data would characterize water that has already been discharged.

Versar immediately notified the EPA primary contact of the above observations and concerns for evaluation and possible action.

3.1.2 Abatement of Pond Sludge

ICF's work plan dated October 1987 called for mechanical dewatering of the pond sludges, thereby producing a filter cake free of liquids and acceptable for disposal at an off-site hazardous waste landfill. The filtrate from the dewatering system was to be processed through the waste water treatment system used for the pond water, tested, and then shipped to the POTW. The filter cake was to be transported off site for disposal.

ICF's approved work plan stipulates that alternative methods for handling the pond sludges, including dewatering in-place by use of well-point systems or in-place stabilization with cement kiln dust and/or other reagents, would be acceptable substitutes for mechanical dewatering only if (1) the sludge products could be disposed off-site, (2) the process would not generate unacceptable air emissions (e.g., dust), (3) the process would allow work to be completed in an acceptable time frame, and (4) the process would cost less than mechanical dewatering.

Versar's observations of actual site activities indicate that an alternative method for handling the pond sludge was implemented. The sludge is being stabilized in-place with either cement kiln dust (CKD) or

AR401108

lime kiln dust (LKD), loaded into trucks, and then shipped for disposal off-site. However, as EPA's oversight agent, Versar is questioning whether conditions (1) and (2) stipulated above were met for the system currently in use at the site.

Versar has not seen documentation proving that the sludge, when mixed in appropriate quantities with CKD or LKD, will be stabilized to the extent required for hazardous waste landfilling. Versar's site representative reported that, as late as August 3, 1988, an ICF technician arrived on site and collected samples of pond sludge. The ICF technician told Versar's representative that the sludge samples were to be tested off-site for extent of stabilization by CKD or LKD mixing and air drying. Also, on July 22, 1988, Versar's site representative was informed by Roy F. Weston's representatives that LKD was being used instead of CKD because CKD was unavailable. Versar should be provided with documented evidence showing that the in-place sludge stabilization being implemented is indeed acceptable to the receiving disposal facility.

Regarding condition (2) above, Versar has not seen documentation from the contractors stipulating measures to be used to ensure that dust emissions are being sufficiently minimized during the in-place stabilization. Also, measures to suppress dust emissions are not being consistently implemented in the field. For example, on July 20, 21, and 22, when CKD shipments arrived onsite, and were being dumped into ponds and mixed with the sludge, Versar's site representatives noted substantial dust emissions from operations. Dust control measures were not being implemented. These observations and concerns were immediately routed to the EPA primary contact.

3.2 Treatment System Throughput

Despite equipment difficulties, the site contractors maintained daily flow rates of pond water pumping and treatment in the range from about 104,000 to 112,000 gallons per day. Based on EPA's instructions, this flow rate was to remain below 150,000 gallons per day at all times.

AR401109

A major equipment problem early in the clean up was excessive accumulation of material on the filter bed in the pressurized filter vessel. This buildup interfered with the effectiveness of particulate removal from the pond water prior to ion-exchange treatment. The problem was temporarily solved by shutting down the system and manually removing the debris from the filter bed. Then, a backflush system was implemented to regularly clean the filter bed.

3.3 Site Worker Health and Safety

On July 14, 1988, Weston personnel entered the enclosed filter tank to manually remove accumulated debris on the filter bed. Despite air quality readings of up to 22 ppm above background on Versar's photoionization detector in the tank's headspace, and repeated suggestions from Versar's site representative that contractor personnel not enter the tank until readings subsided or appropriate respiratory protection and protective clothing was donned, the contractor personnel entered the tank. The contractors did not have respirators onsite until July 18, 1988.

On July 19, 1988, Versar's site representative tested the air in the headspace of the filter tank and detected extremely high levels (>1,000 ppm) of organic vapors. These levels were measured after about a 30-minute period when the tank was allowed to "air out" or naturally ventilate through an open hatch. Despite identification of a potentially unsafe condition, and Versar's repeated suggestions not to enter the vessel, the contractor personnel entered the tank without further delay and without donning appropriate personal protective equipment (PPE).

On July 19 and 20, 1988, Versar's site representative observed and documented that contractor personnel entered the sludge pits without donning appropriate PPE, and that heavy equipment operators were also working in the sludge pits without donning appropriate PPE (see Photograph 3). Versar's site representative also reported that the heavy equipment used in the pits (e.g., the track hoe) was not being regularly decontaminated by the contractors (see Photograph 4). Also, Versar noted

AR401110

visible dust emissions from pit areas during transport and agitation of the kiln dust (see Photograph 5). The contractor's dust control, if any, was inadequate.

Versar's Work Assignment Manager expeditiously relayed the above instances and concerns to the EPA primary contact. Although Versar does not have responsibility for ensuring the health and safety of contractor personnel, Versar's representatives offered professional suggestions to preserve personnel health and safety and routed their concerns to EPA. Despite repeated requests to the contractor's project managers, Versar never received a copy of the contractor's health and safety plan. Without this plan, Versar's concerns about contractor health and safety practices are based entirely on professional experience and judgement, and standard industry practice.

At a minimum, the contractor should have a written procedure for entering and working in enclosed spaces. This procedure should include stringent testing of the air for toxic and combustible compounds, as well as oxygen deficiency. Then, if levels are unacceptable, controls should be implemented to ventilate the space. The space should only be entered when the atmosphere is measured to be safe. Procedures for entering and working in enclosed spaces are stipulated by the Occupational Safety and Health Administration (OSHA) and State agencies.

4.0 RECOMMENDATIONS

Versar's noted concerns regarding the clean-up contractor's deviations from the approved work plan for lagoon abatement and questionable worker health and safety practices could be alleviated or resolved if (1) the contractors provide EPA and Versar with a revised work plan and all background information required to fully establish the environmental credibility of ongoing site activities, (2) the contractors provide a site health and safety plan that at a minimum, provides measures for ensuring worker health and safety and controlling dust emissions, and (3) EPA should continue to encourage the contractors to follow these plans.

AR401111

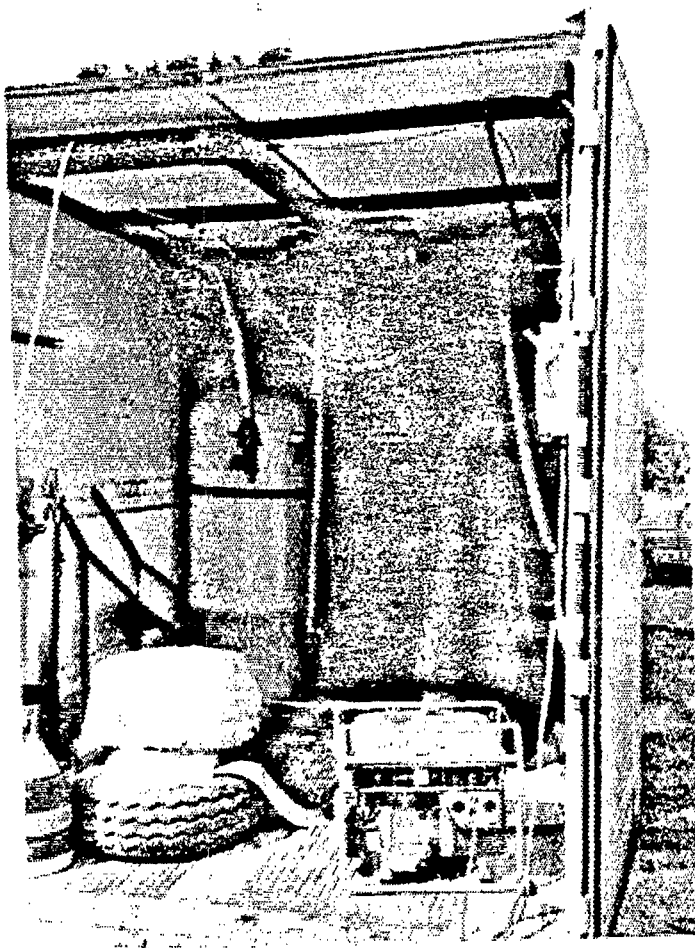
5.0 UPCOMING ACTIVITIES

In August 1988, ICF and Weston will complete the pumping, treating, and discharging of the pond water from the settling lagoon and the new pond. The four sludge ponds have been pumped out. The water treatment process should then be demobilized sometime in August, unless significant amounts of rainwater accumulate in the pits. Kiln dust will continue to be shipped and stored onsite, for subsequent unloading into the pits and mixing with the sludge. Stabilized sludge will then be loaded into trucks and transported for disposal at a hazardous waste landfill in South Carolina. Based on the most recent information from the contractors, all sludge and a 3-inch layer of underlying soil may be removed from the site by middle-to-late August. As the sludge and sediment are removed from the pits, extensive soil composite sampling and analysis is planned to identify future soil removal needs. The estimated volumes of contaminated soils requiring removal from the pits will determine final closure methods. Then, all pond areas will be backfilled and restored.

AR401112

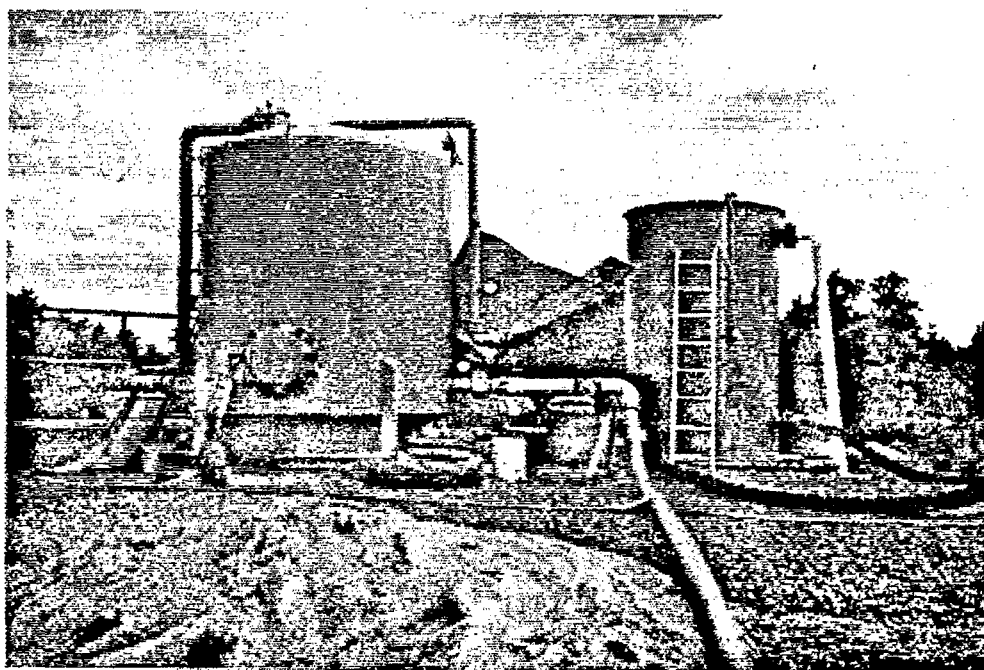
PHOTOGRAPHIC LOG

AR401113



Photograph 1: A portion of the water treatment system, this tractor trailer houses the ion-exchange units (which are the gold tanks). Date: July 21, 1988

AR401114



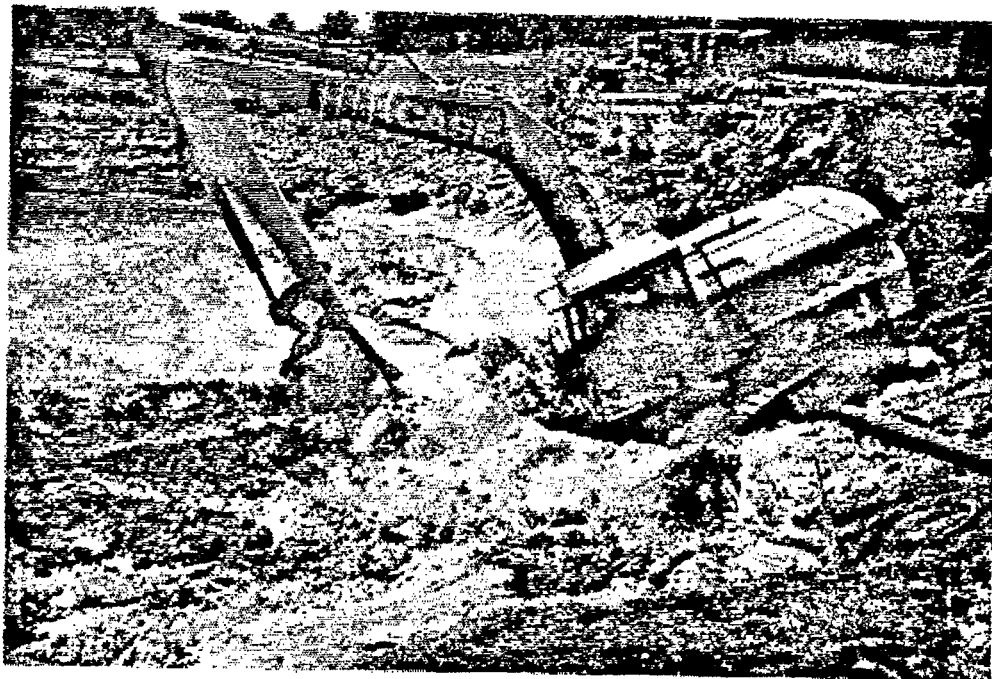
Photograph 2: A portion of the water treatment system, these vessels are the pressurized sand filter (on the left) and the settling tank (on the right). Date: July 21, 1988

AR401115



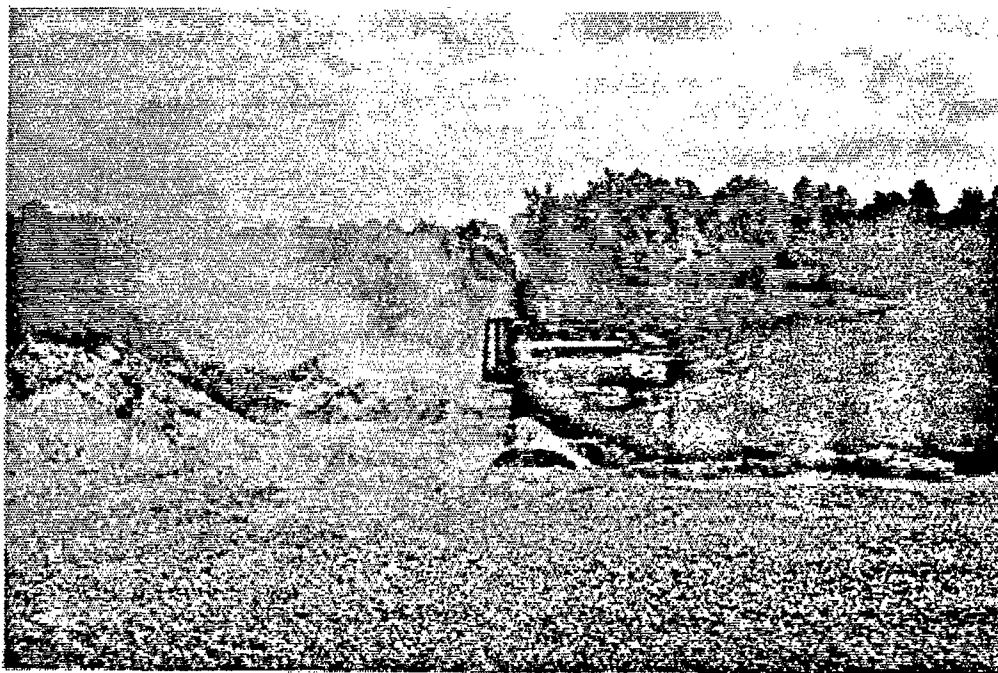
Photograph 3: This trackhoe is mixing the sludge and kiln dust in the new pond. Please note that the operator is not wearing a tyvek suit. Date: July 21, 1988

AR401116



Photograph A: The trackhoe is stuck in the Southwest sludge pond. When it was removed from the pond, the trackhoe was not decontaminated. Date: July 25, 1988

AR4C1117



Photograph 5: During trackhoe mixing in the new pond, substantial dust emissions were generated. Date: July 21, 1988

AR401118